

XI. *Descriptions of Seven new British Land and Fresh-water Shells, with Observations upon many other Species, including a List of such as have been found in the County of Suffolk.*
By the Rev. Revett Sheppard, F.L.S.

Read March 4, 1823.

IN the Descriptive Catalogue of British *Testacea*, published by Dr. Maton and Mr. Rackett, in the eighth volume of the *Linnean Transactions*, the *habitats* of the Land and Fresh-water Shells having for the most part been confined to the midland and western counties, I have been induced to lay before the Society a description of seven new species, and a list, with copious observations, of the Land and Fresh-water Shells hitherto discovered in the county of Suffolk, and occasional notices of places in which they have been found in Essex*; by which it will be seen, that the eastern parts also of this island are equally fertile in those elegant and interesting productions of Nature. The utility of such an undertaking seems to be generally allowed; and should this humble attempt meet with approbation from the lovers of conchology, I shall be amply gratified.

Although I have followed Linnæus's arrangement in preference to any other, from the opinion that the Land and Fresh-water Shells are all reducible to his genera; I must nevertheless, in justice to M. Draparnaud, remark, that I esteem his work to be a most admirable one; and that his genera (at least those adopted by him), considering them as subdivisions of the Linnean genera, are, with few exceptions, *secundum naturam*.

* My knowledge of Essex is confined to the hundred of Tendring, a peninsula formed by the German Ocean and the rivers Stour and Colne.

ARRANGEMENT OF THE SUFFOLK LAND AND FRESH-WATER SHELLS.

TELLINA	1. cornea 2. stagnicola ***	}	CYCLAS of Draparnaud and Lamarck.	HELIX	28. planorbis 29. planata 30. complanata 31. vortex 32. cornea 33. spirorbis 34. contorta 35. Draparnaudi 36. alba 37. fontana ***	}	PLANORBIS, Drap. and Lamarck.		
	3. amnica 4. Henslowana								
MYTILUS	5. cygneus 6. anatinus 7. Macula			}	ANODONTA, Drap. and Lamarck.				
BULLA	8. fontinalis 9. hypnorum	}	PHYSA, Draparn. and Lamarck.	38. Somershamiensis 39. lapicida	}	HELIX, Draparn. CAROCOLLA, Lam.			
BUCCINUM	10. terrestre	}	BULIMUS, Drap. ACHATINA, Lam.	40. paludosa 41. ericetorum 42. virgata 43. caperata 44. rufescens 45. Cantiana 46. nitens 47. nitidula 48. hispida 49. radiata 50. Kirbii 51. trochiformis 52. crystallina 53. spinulosa 54. arbustorum 55. nemoralis 56. hortensis 57. aspersa ***	}	HELIX, Draparn. and Lamarck.			
TURBO	11. viviparus 12. achatinus 13. tentaculatus			}			PALUDINA, Lam. CYCLOSTOMA, Dr.		
	14. elegans 15. fontinalis 16. Leachii	}	CYCLOSTOMA, Dr. and Lamarck.						

	17. laminatus 18. nigricans	}	CLAUSILIA, Drap. and Lamarck.						

	19. Carychium	}	AURICULA, Drap. and Lamarck.	58. Lackhamensis 59. obscura 60. lubrica ****			}	BULIMUS, Drap. and Lamarck.	

	20. tridens		PUPA, Lamarck.	61. putris *****			}	SUCCINEA, Drap. and Lamarck.	

	21. perversus 22. muscorum 23. marginatus 24. Offtonensis 25. sexdentatus	}	PUPA, Draparnaud and Lamarck.	62. stagnalis 63. palustris 64. fossaria 65. limosa 66. auricularia 67. lutea *****	}	LIMNEUS, Drap. LYMNÆA, Lam.			

	26. nautilus	}	PLANORBIS, Dra. and Lamarck.	68. pellucida	}	VITRINA, Draparn. and Lamarck.			

	27. cristatus	}	VALVATA, Drap. and Lamarck.	NERITA 69. fluviatilis	}	NERITA, Draparn. NERITINA, Lam.			
				PATELLA 70. oblonga	}	ANCYLUS, Drap. and Lamarck.			

2. TELLIN

2. TELLINA STAGNICOLA.

T. testa rhombea glabra, umbone exserto.

Cyclas calyculata, var. 2. Lamarck, Anim. sans vert. v. 559.

Habitat in stagnis.

Testa $4\frac{1}{2}$ lin. longa, $5\frac{1}{2}$ lin. lata, glabra, tenuis, pellucida, cornei coloris, epidermide nulla. Valvulae versus marginem complanatae.

This I have always considered to be a distinct species, and have described it under the name by which I was favoured with a specimen by Dr. Leach.

It may easily be distinguished from the *T. lacustris* of the *Linnean Transactions* and the *Cyclas calyculata* of Draparnaud, by the remarkable projection of its *umbones*, which appear like young shells glued upon those parts.

In abundance in a small pond at Offton, on Mrs. Leake's farm, on the right-hand side of the path leading to Somersham by the fields.

In ponds at Wrabness in the county of Essex it is very common. The gravel-pit pond on the glebe there produces a variety in which the *umbones* touch each other. It is remarkable that the young only of this species are to be found in the spring; the adults not emerging from their muddy retreats till the summer, when they rise near the surface, and adhere to plants in great quantities.

Cases formed of these shells by the *Caddis-worms* are very beautiful, resembling bunches of grapes.

4. TELLINA HENSLOWANA.

T. testa oblique subovata transversim vix sulcata, projecturâ a basi umbonis adornata.

Habitat in rivis.

Testa

Testa 2 lin. longa, $2\frac{1}{2}$ lin. lata, cornei coloris, glabra, striata, vix sulcata, anteriùs planiuscula.

I first received this species from Dr. Leach, and a very distinct one it is. It belongs to the same group as *T. amnica*, having the hinge on one side; it is smaller than that species, but more tumid in proportion; and its decisive characteristic arises from a curious eave-like projection at the bases of the *umbones*.

Sparingly in the stream at Holbrook with *T. amnica*. They both seem to prefer a gravelly or sandy bottom.

Dr. Leach named this shell after his friend Professor Henslow, who, I believe, was its first discoverer.

6. MYTILUS ANATINUS. *Trans. Linn. Soc. vol. viii. p. 110.*

This species, in some situations, has its *umbones* decorticated; in others the epidermis is entire. This difference cannot be assignable to the roughness or smoothness of the component parts of the soil in which they are imbedded; because, in rivers with a gravelly bottom, I have found them with the epidermis entire; in ponds, whose bottoms consisted of a soft mud, with the *umbones* decorticated.

Common in most rivers, and in many ponds. Those found in Mr. Kirby's pond at Barham, in the river at that place, and in Campsey Mere, vary from each other.

7. MYTILUS MACULA. *Trans. Linn. Soc. vol. xiii. p. 86.*

Ponds in my brother's garden at Campsey Ash.

Described as distinct from *M. anatinus* in a paper which the Society did me the honour to publish in their Transactions; and I am confirmed in that opinion, from the *anterior area* in both adults and young being sloped upwards; which is the case in the young only of *M. anatinus*.

12. TURBO ACHATINUS.

Cyclostoma achatinum. Draparn.

In great abundance, in the year 1820, on the beach at Felixstow, within the bay of Harwich, near to Languard-Fort, whither they must have been brought from some fresh-water stream; but I have never detected it in a recent state.

It is very distinct from *T. viviparus*; is the *Cyclostoma achatinum* of Draparnaud; and is unnoticed by Linnæus.

Is this the *Helix compactilis* of Dr. Pulteney? If it be, the *habitat* given by the Doctor is an erroneous one; for he says it is found in woods.

13. TURBO TENTACULATUS.

Helix tentaculata. *Trans. Linn. Soc. vol. viii. p. 220.*

Common in most rivers and streams. I have a specimen taken by my valuable friend Mr. Kirby out of a small stream near Lyndhurst in the New Forest, in which the lowest volution but one is slightly decussated, the horizontal striæ being the deepest.

The form of the mouths of this shell and *Turbo viviparus* warrants the withdrawing them from the genus *Helix*, and placing them with *Turbo elegans*. They, with some others, form an excellent subdivision of the Linnæan genus *Turbo*; and Draparnaud includes them in his genus *Cyclostoma*.

16. TURBO LEACHII.

T. testa imperforata subovata, anfractibus 5 rotundatis oblique decurrentibus, sutura conspicua, apertura suborbiculari, operculo membranaceo.

Habitat in rivis.

Testa 3 lin. longa, $1\frac{3}{4}$ lin. lata, cornea, diaphana, glabra. Anfractus 5, teretes. Spira elongata. Apex acutus.

A di-

A distinct species, sent to me by Dr. Leach under the specific name of *ventricosa*. As, however, I have a curious shell very nearly allied to the *Clausilia ventricosa* of Draparnaud, and which may possibly be a variety of that species, (in which case it must be called *Turbo ventricosus*,) I have honoured this shell with the name of that distinguished naturalist Dr. Leach, to whose friendship I am indebted for the possession of many curious species and much valuable information.

Found sparingly in Campsey Mere, and Holbrook stream and mill-pond.

This species bears a great resemblance to the young of *Helix fossaria*; and being an operculated shell, it has probably been confounded with the young of *T. tentaculatus*.

17. *TURBO LAMINATUS*. *Trans. Linn. Soc. vol. viii. p. 179.*

In moss upon the trunks of trees, and under the bark of, and upon, dead branches which have lain long upon the ground.

In Middlewood Offton; and in Great Blakenham and Friston woods.

I have a variety from Friston wood, in which the seven lower volutions are slightly decussated. It is the *Clausilia bidens* of Draparnaud.

18. *TURBO NIGRICANS*. *Trans. Linn. Soc. vol. viii. p. 180.*

Common in the same situations as the preceding.

I have taken a curious variety in Friston wood much shorter and larger in girth than they usually are. Sometimes found with the *striae* nearly obliterated.

The curious shell mentioned under the article *T. Leachii*, if not a variety of the *Clausilia ventricosa* of Draparnaud, must be assigned to this species. It was found under the bark of a tree on Harper's cliffs, in the parish of Levington; is a fusiform shell,

having three of the middle volutions vastly more prominent than the rest, and widely separated from each other.

20. *TURBO TRIDENS*. *Trans. Linn. Soc. vol. viii. p. 181.*

This rare and interesting species had hitherto been confined to a single *habitat*, viz. Amersham wood in Buckinghamshire; a specimen procured from which place I owe to the kind attention of my learned and worthy friend Dr. Goodall, Provost of Eton; but on the last day of May 1821, myself and son went on a conchological expedition to Friston wood, and in a space not exceeding fifteen feet square (where we were employed on our knees nearly two hours), under moss kept moist and shaded by a luxuriant growth of *Dog's Mercury* and thick underwood, we were fortunate enough to find twenty-four specimens. One of them had only two teeth, that on the lip being wanting, it probably being the last tooth formed. Young shells have the aperture narrow, acuminate, and without teeth; but there is a fold upon the *columella*. I have since procured thirty-eight specimens from the same spot.

It forms a subdivision of the genus *Turbo*, agreeing neither with the *Clausilia* nor *Pupa* of Draparnaud. It is scarcely necessary to add, that the *Pupa tridens* of that author is a very different shell.

As Dr. Pulteney says that *T. tridens* is *white*, and found on *water-plants*, I conclude his specimens to have been bleached, and conveyed from their natural situation by the waters of a flood.

23. *TURBO MARGINATUS*.

Pupa marginata, *Draparn.*

This species is dark-brown and sub-opaque; the margin of the aperture is slightly reflexed and very narrow; and the tooth is short, perpendicular, and placed below it; whereas in *Turbo muscorum*

muscorum the margin is broad and reflexed, and the tooth is long, obliquely directed from right to left, and is on a level with it.

These shells are also found in very different situations; *T. muscorum* inhabits moss upon the bark of trees in shady and moist places; *T. marginatus*, on the contrary, is only found in dry pastures and the most open places. The young much resemble *Trochi*.

Not uncommon under stones and sticks in Little Blakenham: and within the bounds of Ipswich, not far from the *Red-House*, as you go towards Westerfield by the fields. Specimens found in the above situations never exceeded $1\frac{1}{4}$ lin. in length, and had 6 volutions, answering exactly to the *Pupa marginata* of Draparnaud.

I have since found the same species at Shotley, at the roots of grass on the marsh within the Sea Wall; and in profusion in Essex, near Wrabness point, on the upper part of the marsh; a situation which at high spring-tides is covered with water. These latter shells were $1\frac{3}{4}$ lin. in length, and had 7 volutions. Some of them were without the white band or hood above the margin, which is probably attained by age; and one specimen had the aperture rather sloped towards the base, and the *umbilical cleft* of course oblique; such a variety answers well to the *Pupa umbilicata* of Draparnaud, which is probably, therefore, only a variety of *T. marginatus*.

The same species has been found on the summit of Harwich cliff.

24. TURBO OFFTONENSIS.

T. testa fusca striata subpellucida, anfractibus septem secundis sensim minoribus, aperturâ rotundatâ edentulâ nec marginatâ.

Habitat super gramina et arbusta in sylvis, super truncos arborum, atque inter folia putrescentia.

Testa plusquam $1\frac{1}{4}$ lin. Angustior quam *T. muscorum* et *T. marginatus*,

ginatus, et spiris sensim minoribus. Apertura edentula, margine nec reflexo, nec diverso colore.

In young shells the whorls do not decrease gradually, the two first being much smaller in proportion to the rest.

Found abundantly in the summer season by brushing long grass and bushes in Middlewood Offton; and in a grove at Somersham, on the left side of the road leading from that place to Flowton. Amongst dead leaves at the roots of grass in Friston wood.

In Essex it is taken upon trees on Wrabness cliff, at Ramsey decoy, and in Stourwood.

It is not a little singular that the Essex specimens should be uniformly darker than those found in Suffolk. The *Pupa edentula* of Draparnaud has only five volutions, and possibly may be the young of this species.

25. *TURBO SEXDENTATUS*. *Trans. Linn. Soc. vol. viii. p. 183.*

Under stones and pieces of wood at Levington, Spexhall and Offton, but by no means common.

In Essex, at the roots of grass by the River Stour; at Wrabness near Bradfield-bay; and in the open part of the Glebe grove, whence a specimen was procured with a dark band following the order of the volutions.

The *habitat* of this species, as given by Montagu, is clearly a wrong one, and must mislead those who search for it. He probably found it creeping up the *Iris pseudacorus*, in consequence of its having been conveyed to such a situation by the waters of a flood.

26. *TURBO NAUTILEUS*. *Trans. Linn. Soc. vol. viii. p. 169.*

In both the Glebe ponds near the Parsonage at Spexhall; in the pond at Offton, where *Tellina stagnicola* is found; and in a pond in Dynes's meadow, near Nettlestead Church.

In

In Essex it is in great abundance in a pond on the right-hand side of Mrs. Gox's Lane, Wrabness.

Those found at Spexhall are minute, greenish, and have long reflexed spines; in other situations where I have found them, they have been considerably larger, reddish, with much shorter spines.

This species varies in size and colour, and in being with or without *annuli* and *spines*; in consequence whereof M. Draparnaud has made two species, viz. *Planorbis cristatus* and *Planorbis imbricatus*, but without sufficient reason.

28. *HELIX PLANORBIS.* *Trans. Linn. Soc. vol. viii. p. 188.*

River Gipping and adjoining ditches.

From Ramsey stream in Essex I have a curious deformed variety, in which the volutions are nearly disjoined, or pulled out *si ita dicam*.

30. *HELIX COMPLANATA.* *Linn. Syst. Nat. ed. xii. vol. ii. p. 1242.*

River Blythe, near Halesworth; Baylham pond; ditches by the River Ore at Blaxhall; Holbrook stream and mill-pond; and ditches near the River Stour at Higham.

That this is the true *Helix complanata* of Linnæus, some learned conchological friends coincide with me in opinion. Notwithstanding, however, that its appearance is so much in favour of its being a distinct species, it may after all be the young of *H. planata*. It is certainly found in the places where that shell occurs; and although its under superficies be flat, yet by age the under-side of the lowest volution may become tumid, which would throw the *carina* into the middle of the whorl, and cause it at once to become a very *Helix planata*. This is however merely conjecture, but such as may hereafter be verified:

verified: and it must be allowed that greater changes than this do actually take place betwixt the young and old of many of our land and fresh-water shells.

33. *HELIX SPIRORBIS.* *Trans. Linn. Soc. vol. viii. p. 191.*

In the stream and ditches at Brantham, by the road between Ipswich and Manningtree.

In abundance in the Glebe ponds at Wrabness, Essex.

A variety sometimes occurs in which the volutions appear as if pressed out from the base towards the vortex; and being almost disjoined, cause the shell to resemble a little basket. In another variety, and I have found a similar one of *Helix vortex*, the mouth is enlarged and turned over the preceding volution, which gives the idea of a serpent coiled up.

This is the shell first distinguished as *H. spirorbis* by Montagu; yet it does not answer to the terms *albida* and *pellucida*, which Linnæus uses in his description; for it certainly has no pretension to be called *whitish*; nor is it so transparent as *Helix vortex*, to which Linnæus applies the term *subpellucida*. Neither will it at all agree with Draparnaud's figure and description of *Planorbis spirorbis*, which is both *albida* and *pellucida*; for, as he describes his shell *supra plana, carina media, anfractu ultimo majore*, of course *that* cannot be the species intended by Linnæus.

35. *HELIX DRAPARNAUDI.*

H. testa supra subconcava subtus concava subcarinata, anfractibus quatuor transversim striatis: ultimo majore.

Habitat in aquis dulcibus.

Testa diametro 3 lin. supra grisea, subtus albida, nitescens; anfractibus quatuor, ultimo, in medio juxta aperturam, subcarinato. Apertura dilatata.

This

This shell, of which I have taken two specimens in Holbrook mill-pond, is of nearly the same shape with *H. alba*, yet cannot be mistaken for it. It agrees also in many respects with *Planorbis spirorbis* of Draparnaud, which is a different species from the *H. spirorbis* of *Syst. Nat.* as I have remarked in its place, but being striated in the transverse direction, a circumstance unnoticed by him, and which he could not have overlooked, it must be considered as new; and I have accordingly honoured it with the name of that sagacious conchologist.

37. *HELIX FONTANA.* *Trans. Linn. Soc. vol. viii. p. 193.*

Pond in the Round Meadow, on the estate of John Sheppard, Esq. of Campsey Ash; and in Baylham pond.

In Ramsey decoy-pond, Essex.

The identity of this species with *Nautilus lacustris* is I know looked upon as certain by some conchologists: I can only say, that I have taken some thousands of them without their assuming in a single instance the form of that shell.

38. *HELIX SOMERSHAMIENSIS.*

H. testa grisea umbilicata, anfractibus 2 vix 3 reticulatis.

Habitat in sylvis, rarissima.

Equal in magnitude to a middle-sized *H. alba*, which it resembles in shape; is of a greyish colour, and curiously reticulated, particularly above.

The only two specimens I have met with were adhering to the under-side of a small decayed branch of oak, in a grove on the left-hand side of the road leading from Somersham to Flowton.

It is perfectly distinct from any species hitherto described; and, from its similarity in shape to *Helix alba*, has been placed

as

as a connecting link at the head of the next subdivision ; yet possibly may, though a land shell, belong to the same : but I can give no further description, my specimens having been lent some years since to a gentleman, from whom I have not yet received them.

41. *HELIX ERICETORUM.* *Trans. Linn. Soc. vol. viii. p. 194.*

By the side of a pond in one of the Glebe fields of Offton ; and on Felixstow Common, between the cliffs and Ferry-house in great abundance.

This species is found as well without as with bands ; and I have observed that in fruitful situations it is oftener without bands than it is in the more sterile. I have two specimens from Winthorpe in Nottinghamshire, one with bands, the other without ; in both the upper superficies is flat, and the lower remarkably tumid, sloping from the circumference to the *umbilicus*.

46. *HELIX NITENS.* *Trans. Linn. Soc. vol. viii. p. 198.*

Common in woods and shady places under moss, stones, and pieces of wood. Very fine specimens are to be obtained in Friston wood.

The inhabitant is black, and has a very fetid smell, much resembling that of the urine voided by the common snake *se defendendo*, and by which one may frequently be guided to the spot where it is. In some instances this odour is not observable till the shell has been immersed in boiling water.

47. *HELIX NITIDULA.* *Draparnaud.*

In Middlewood Offton.

In Essex I have taken it in the plantation at the end of my lawn ; at Wrabness and Ramsey decoys ; in the parish of Beaumont ; and in the great wood at Thorington.

An

An almost diaphanous whitish variety is found in Little Stour wood, Wrabness.

This species is distinct from *Helix nitens* and *Helix hispida*; assuming nevertheless, in some respects, the characters of both. Its upper superficies has a dull waxy appearance, thereby differing from either of them. The animal is of a light colour, and emits no unpleasant smell; and the young shells particularly are beautifully striated; which circumstances separate it from *H. nitens*; whilst on the other hand, like that shell, its under surface is whitish and highly polished, and it is found in the same situations. It is not so convex as *H. hispida*, never goes under water, and is of a different colour: yet the young are scarcely discernible from those of that shell.

It occurs in Mons. Draparnaud's work; but as he describes it with four volutions only, whereas it has five, I presume he had not seen it in its adult state.

When Dr. Pulteney tells us that *Helix hispida* is common in woods, does he not intend this species?

48. *HELIX HISPIDA*. *Trans. Linn. Soc. vol. viii. p. 198.*

At the edges of the third mill-pond on Porter's Farm, Levington; on pieces of wood submersed in, and at the roots of grass occasionally covered with water by the side of, Baylham pond.

In Essex, on old wooden piles in Ramsey decoy-pond.

This is an amphibious shell, and is frequently found some feet below the surface of water on stakes and piles, upon which it ascends and descends at pleasure.

On the 2d of June 1821, I took a specimen at Ramsey decoy-pond with four eggs adhering to the animal; they were round, white, and opaque, resembling the eggs of birds, and retain their form without shrinking.

49. *HELIX RADIATA*. *Trans. Linn. Soc. vol. viii. p. 199.*

Common under pieces of wood and bark in Middlewood Offton, Friston wood, &c.

I have a beautiful pale-green variety without rays from Stour wood, in Ramsey, Essex; and some pale specimens of a larger size (also without rays) from Dinton Hall grounds in Buckinghamshire, a present from Dr. Goodall.

50. *HELIX KIRBII*.

H. testa nunc subconica nunc subdepressa subpellucida striata, anfractibus quatuor, umbilico patulo.

Habitat sub saxis et lignis.

Testa diametro $\frac{1}{2}$ lin. rufo-cornea; anfractibus subtiliter striatis.

Apertura subrotundo-lunata. Labium tenue. Umbilicus profundus.

Found under stones between Baylham and Great Blakenham.

In Essex it occurs in considerable numbers in Stour wood, Ramsey; Glebe grove, Parsonage garden and lawn in Wrabness, under stones and pieces of wood, as well sound as decayed.

This shell had the trivial name of *elegans*, originally given it by me; but that name being pre-occupied by Draparnaud, I hope this beautiful little species will in future be called after one of the best of men, and best of friends, the Rev. William Kirby of Barham.

A friend assures me, that he has examined several specimens I sent him, without being able to discern any difference betwixt them and the young of *Helix umbilicata*. But as it never exceeds $\frac{1}{2}$ a line in diameter, whereas the *H. umbilicata* equals $\frac{1}{10}$ th of an inch; as it is found in profusion in the above-mentioned places in Essex; and the whorls, four only in number, never appear *ferè disjuncti*, as they do in that shell, which has five whorls, and has

has never been found either in Suffolk or Essex ; I must think there is sufficient reason for considering it a distinct species.

Nor is it a new occurrence for one species to bear the greatest resemblance to the *young* of another. Montagu, as my friend Dr. Leach informed me, considered *Helix pellucida* (*Vitrina pellucida* of Draparnaud) to be the young of *H. nemoralis*, yet is it a perfectly distinct shell ; and we have seen how nearly allied are the young of different species in what has been said concerning *H. nitidula*.

Is this the *Trochus Matoni* of the Elements of Natural History?

55. *HELIX NEMORALIS*. *Trans. Linn. Soc. vol. viii. p. 206.*

Very common in gardens and hedges.

These shells are found *without*, with *one*, and with *several* dark bands following the course of the volutions ; and are accordingly placed as distinct species in my cabinet, although I have not ventured to separate them in this paper. Nevertheless, it may not be amiss to insert my reasons for considering them distinct, as it will lead to the mention of some curious facts and illustrations.

In many places in Suffolk, in my garden at Wrabness, and on an arid sandy common adjoining to Stony-Point, in the parish of Walton in the Naze, I have repeatedly observed the several sorts in copulation, not indiscriminately, as might especially be supposed to be the case at Walton, where they lay by hundreds ; but, constantly the *plain sort* (*Helix nemoralis*, mihi) with plain, the *one-banded* (*H. cincta*, mihi) with one-banded, and the *many-banded* (*H. 5-fasciata*, mihi) with its kind. What can this prove, but that the three sorts are as many distinct species ?

Another remarkable circumstance may be adduced in proof of this : from the *one-banded* and *many-banded* sorts I have taken the *Spicula* or *Love-darts* ; that of the former is four-sided in the

middle and perfectly *straight*; in the latter it is also four-sided in the middle, but *curved* as in *H. aspersa*. The *Spicula* of the *plain sort* I have not been fortunate enough to find; but as they differ in the two former, it is reasonable to suppose they do also in this.

Now to my reasons for considering the three sorts as distinct species, a seemingly decisive argument has been objected, viz. that they have all been produced from *one* deposit of eggs. But has it ever been clearly ascertained that such deposit was made by a single snail?

Being on the subject of *H. nemoralis*, the following passage from Shaw's Travels in Barbary will not I hope be deemed irrelevant; because something similar has been observed in this part of the country by me, tending even to establish (if any thing were wanting) the truth of what that eminent writer advances.

"Those parts of the Sahara," says he, "which these birds (Ostriches) chiefly frequent, are destitute of all manner of food and herbage, except it be some few tufts of coarse grass, or else a few other solitary plants of the *Laureola*, *Apocynum*, and some other kinds, each of which is equally destitute of nourishment; and in the Psalmist's phrase, cxxix. 6. *even withereth afore it be plucked up*. Yet these herbs, notwithstanding this dryness and want of moisture in their temperature, will sometimes have both their leaves and their stalks studded all over with a great variety of *Land-snails*, which may afford them some little nourishment."

In like manner, *parva componere magnis*, on that sandy common at Stony-Point, in Walton in the Naze, above mentioned, the only food which the numerous *Helices* there found can meet with, consists of a few* tufts of hard coarse grass, occasionally

* This was particularly the case in the year 1819. There was much more grass late in the spring of 1821, in consequence of the frequent rains which had fallen.

intermingled with herbs of as dry a texture. And as in the *Sahara* the variety of Land-snails afford nourishment to the *Ostriches*, so may they here serve in part to sustain the various species of *water-fowls*, which at stated periods resort hither and to the surrounding creeks and marshes in great abundance; for, as some water-fowls (*Eider* and *Scoter Ducks*, for instance,) feed on the animals of water-shells, others may do so on the land-shells.

One observation more respecting the Walton *Helices* may perhaps be thought worthy to be mentioned; viz. that lying exposed to the sun, with scarcely any shelter, a great proportion of them have their upper surfaces more or less tinged with a beautiful pink or rose colour; and that this colour is really occasioned by the sun is the more probable, their under parts retaining that which is natural to them.

56. *HELI*X *HORTENSIS*. *Montagu Test. Brit.* p. 412.

H. nemoralis δ . *Trans. Linn. Soc.* vol. viii. p. 207.

Frequent in hedges at Offton, Holbrook, Higham, Stoke by Nayland, and Ipswich; in Friston wood.

Of much rarer occurrence in Essex, but is occasionally found in Ramsey near the Stour; and in hedges bordering the Harwich road, near Dovercourt turnpike gate.

Young shells, when minute, are scarcely to be distinguished from those of the preceding species.

The *H. hortensis*, as well as the preceding, is divided into the *plain*, the *single-banded*, and the *many-banded*, each of various colours; and if future observation should prove that *they* confine their amours to their respective kinds, and that their *Spicula* are different, then ought *they* also, in my opinion, to be established as distinct species.

59. *HE-*

59. *HELIX OBSCURA.* *Trans. Linn. Soc. vol. viii. p. 212.*

On dry banks near Ipswich, and at Spexhall; and on trunks of trees in Friston wood and Middlewood Offton.

In Essex, it inhabits my garden and adjoining fences; West grove, Little Stour wood, and Cliff, all in Wrabness.

These shells, particularly in their young state, show great sagacity and ingenuity by covering themselves with an epidermis adapted to the different situations in which they are found; and when so covered, it is almost impossible for any other than a conchological eye to detect them. If its abode be upon the trunk of a tree covered with *Lichens*, then is the epidermis so constructed as to cause the shell to resemble a little knot on the bark covered with such substances. If on a smooth tree, from whose bark issue small sessile buds, as is frequently the case, it will pass off very well for one of them; and on a dry bank, or the lower part of the body of a tree splashed with mud, its appearance will be that of a little misshapen, pointed piece of dirt.

60. *HELIX LUBRICA.* *Trans. Linn. Soc. vol. viii. p. 213.*

In moss, and under stones, pieces of wood and bark in moist woods and shady places.

Draparnaud refers this species to *Helix subcylindrica* of Linnæus: if he be right, then must Linnæus have been greatly deceived, who says, "*habitat in aquis dulcibus.*" But in my opinion he is in an error as to the Synonym, for the *H. subcylindrica* of Linnæus has only four anfractus, whereas the *H. lubrica* has six.

With respect to the *H. subcylindrica* of Dr. Pulteney, the learned authors of the *Descriptive Catalogue of the British Testacea* assure us* that it is the *Turbo truncatus*, a sea shell.

* *Trans. Linn. Soc. viii. p. 177.*

61. *HELIX PUTRIS*.

Helix succinea. *Trans. Linn. Soc. vol. viii. p. 218*.

Very common upon water plants by the sides of rivers and ponds.

They are of an unusually large size at Campsey Mere. This is the *Helix putris* of Linnæus, Montagu, and Donovan; but the *H. succinea* of Dr. Maton and Mr. Rackett, which last authors use the following words, "Linnæus describes *H. putris* as 'obtusa,' and 'mucrone obtusiusculo,' characters which do not belong to *H. succinea*."

Now, with all deference, I affirm that those characters given by Linnæus to *H. putris* are exactly applicable to the *H. succinea* of Dr. Maton and Mr. Rackett, and that during twenty years diligent investigation of the Land and Fresh-water Shells, I never found a specimen to which they did not apply.

I must add that Draparnaud, in his List of Synonyms, rightly refers his *Succinea amphibia* to the *H. putris* of Linnæus.

64. *HELIX FOSSARIA*. *Trans. Linn. Soc. vol. viii. p. 217*.

In a pond at Claydon; in Holbrook and Stutton streams; and in the river Stour at Higham.

A curious whitish variety is found at Levington, on Harper's cliffs, under stones where a little water has collected. Another variety I have taken in Holbrook stream, in which the volutions are more oblique than usual; there is in fact as much difference betwixt it and the true *H. fossaria*, as between *H. stagnalis* and *H. fragilis*: the two lower volutions are also longitudinally and transversely crossed with whitish *striae*.

Very abundant in Essex, particularly in the garden pond at Wrabness Parsonage.

It

It is the *Limneus ovatus* of Draparnaud, who erroneously identifies it with the *H. limosa* of Linnæus.

65. *HELIX LIMOSA*. *Linn. Syst. Nat. ed. xii. vol. ii. p. 1249.*
Helix putris. Trans. Linn. Soc. vol. viii. p. 219.

In abundance in most rivers, marsh ditches, and ponds.

Draparnaud has made two species of it, viz. *Limneus peregra* and *L. ovatus*. It is the *H. peregra* of Montagu, and *H. putris* of Dr. Maton and Mr. Rackett; so that it would appear that the *H. limosa* of Linnæus was unknown to modern Conchologists.

But surely there is no occasion for the trivial names *succinea* and *peregra*;—with me, at least, there is the strongest conviction, that as *H. succinea* of Dr. Maton and Mr. Rackett is the *H. putris* of Linnæus; so also is the *H. putris* of those authors and the *H. peregra* of Montagu the true *H. limosa*.

It must be observed that this species is frequently found with five volutions, in which state Linnæus described it. I have specimens from Mrs. Cox's pond in Wrabness, which equal one inch two lines and a half in length; and a curious variety from the pond below Ramsey Decoy, in which the margin is so extremely dilated as to give the lowest volution the appearance of a huntsman's cap.

66. *HELIX AURICULARIA*. *Trans. Linn. Soc. vol. viii. p. 221.*

In Campsey Mere and Holbrook stream; and at Baylham, below the Fall in the Back-water of the River Gipping belonging to Sir William Middleton, Bart.

I have a dwarf variety from the pond in Fearis' wood in Beaumont, Essex. Also two fine varieties from the stream between Langford Fleet and the River Trent, Notts,—in one of which the inside is purplish; in the other, of a delicate silvery white, and the margin is considerably dilated.

67. HE-

67. *HELIX LUTEA*. *Trans. Linn. Soc. vol. viii. p. 222.*

A specimen was found some years since on the banks of the River Gipping at Sproughton, by my venerable friend the Rev. James Lambert, of Trinity College, and formerly Greek Professor in the University of Cambridge. This circumstance, combined with my having taken abundance of them at Winthorpe, on the banks of the River Trent, Notts. (after a flood) at least thirty miles above its junction with the salt water, proves *H. lutea* to be a *fresh-water* shell. Those found therefore by Montagu *ad littora maris* must have been carried down to the sea by some fresh-water stream, and afterwards thrown on the shore. I have never taken it in a living state. It probably inhabits the depths of rivers.

68. *HELIX PELLUCIDA*. *Penn. Brit. Zool. vol. iv. no. 134.*

Inhabits the Parsonage garden at Offton, and the grove in which *H. Somershamiensis* is found; plentiful also at the roots of grass in the marsh within the Sea-wall at Shotley.

In abundance in moss and under pieces of wood in Little Stour wood, my garden and lawn, Wrabness, Essex.

This is the *Vitrina pellucida* of Draparnaud; a very distinct species, but bearing some resemblance to the young of *H. nemoralis* and *H. hortensis*.

This shell varies as to the colour of its suture; in some it is whitish and more wrinkled than in others; in some it is brown; whilst in others the brown, in particular lights, appears to be gilded.

The green colour of the shell is also of various hues; and young specimens are whitish, and have only two, or scarcely two, volutions; so that I think it is manifest that Draparnaud has multiplied one species into three.

The *animal* sometimes appears too big for its habitation, in one instance greatly exceeding it; and will occasionally cover it *pallio gelatinoso*. Its upper part is of a light colour with black head and horns; under part light-coloured, bordered with black. Air-valve, when closed, a black spot; when open, surrounded with a black ring.

I have always considered this shell as the *H. pellucida* of Pennant (to which Dr. Maton and Mr. Rackett have referred *H. nitens*); and Draparnaud bears me out in that opinion, by referring his *Vitrina pellucida* to the *H. pellucida* of Müller.

Wrabness Parsonage, Essex,
May 16, 1822.